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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,877	06/07/2005	Gillian Antoinette Mimnagh-Kelleher	NI 021259	8406

24737 7590 05/08/2007

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER	
SHAH, SAMIR M	

ART UNIT	PAPER NUMBER
2856	

MAIL DATE	DELIVERY MODE
05/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/537,877	MIMNAGH-KELLEHER ET AL.	
	Examiner	Art Unit	
	Samir M. Shah	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/20/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 02/19/2007 have been fully considered but they are not persuasive.

As to Applicants' arguments, "Hutchings, Jacobsen, and Nikolic do not...disclose or suggest, either singly or in combination, storing values corresponding to vector magnitudes in a memory of an activity monitor attached to the subject...or transmitting stored values corresponding to vector magnitudes to a device configured to determine an activity level of the subject...or an attachable activity monitor comprising a processor operable to process sensor signals as respective vector components to produce resultant vector and store values corresponding to the magnitude of the resultant vector", the Examiner disagrees.

2. Please refer to:

the 35 U.S.C. 102(b) rejection of claims 10-14 and 16-25 as being anticipated by Hutchings et al. (US Patent 6,122,960 henceforth "Hutchings"), the 35 U.S.C. 102(b) rejection of claims *** as being anticipated by Jacobsen et al. (US Patent 6,160,478 henceforth "Jacobsen"), the 35 U.S.C. 102(e) rejection of claims *** as being anticipated by Nikolic et al. (US Patent 6,436,052 B1 henceforth "Nikolic"), and the 35 U.S.C. 103(a) rejection of claim 15 as being unpatentable over Hutchings in view of Nikolic for a detailed explanation of the Examiner's response to the Applicants' arguments.

Claim Objections

3. Claims 10, 11, 19 and 21 are objected to because of the following informalities:

(a) As to claim 10, lines 7 and 10, delete "simultaneously measured movement" and replace it with --simultaneous movement measured--.

(b) As to claim 11, 2nd to last line, delete "a is the" and replace it with --|a| is the--.

(c) Claim 19 recites the limitation "the host system" in last line of the claim. There is insufficient antecedent basis for this limitation in the claim.

(d) As to claim 21, lines 7-8, delete "simultaneously measured movements" and replace it with --simultaneous movements measured--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 10-14 and 16-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Hutchings.

(a) As to claims 10 and 21, Hutchings discloses a method of monitoring activity of a subject/user comprising:

measuring, at a point on the subject/user (wrist), simultaneous movement in two or more directions (A_x, A_y, A_z using three linear accelerometers), at each of a plurality of times during a time period/cycle (figure 16; column 23, lines 66-67; column 24, lines 47-64; column 25, lines 2-46);

calculating a first vector magnitude from a first simultaneous movement measured at a first of the plurality of times during the time period;

calculating a second vector magnitude from a second simultaneous movement measured a second of the plurality of times during the time period;

storing in a memory/"non-volatile" memory (associated with micro-processor (64) of an activity monitor/unit (60) attached to the subject (user's wristwatch), first and second values corresponding, respectively, to the first vector magnitude and the second vector magnitude (figure 16; column 3, lines 52-59; column 24, lines 47-64; column 25, lines 2-46, especially lines 32-37); and

determining an activity level of the subject for the time period from, at least, the first and second stored values (figure 16; column 24, line 65 - column 25, line 46); or,

transmitting (using a "radio frequency transmitter") at least a subset of the stored values to a device/"microprocessor" configured to determine an activity level of the subject/user/runner/walker (abstract; column 3, lines 52-59).

(b) As to claims 11 and 22, Hutchings discloses the movement being measured by accelerometer (unit 49), the movement directions are orthogonal x-, y- and z- directions (A_x, A_y, A_z) and the first vector magnitude and the second vector magnitude are determined according to the following expression:

$$|a| \text{ (or } |g|) = \sqrt{(a_x^2 + a_y^2 + a_z^2)},$$

where a_x, a_y and a_z are the movement measurements in respective x-, y- and z- (A_x, A_y, A_z) directions and |a| (or |g|) is the magnitude of the resultant vector of such movement (column 15, lines 22-30; equation 25; column 23, lines 66-67).

(c) As to claim 12, Hutchings discloses a plurality of stored values being used to determine the activity level and each of the plurality of stored values corresponding to a vector magnitude (abstract; column 3, lines 52-59).

(d) As to claims 13 and 23, Hutchings discloses determining the activity level comprising summing time integrals of the plurality of stored values (abstract; column 13, line 55 - column 14, line 18; equations 20-32).

(e) As to claims 14 and 20, the disclosure set forth above for the rejection of claims 12 and 13 is relied upon. It is clear, that the step of determining the activity level comprises summing time integrals of the plurality of stored values, which in turn, comprise the first and second vector magnitudes. Also, this implies that the data used to determine the activity level includes values corresponding to two or more vector

magnitudes at each of a corresponding two or more times during the time period (abstract; column 3, lines 52-59; column 13, line 55 - column 14, line 18; equations 20-32).

(f) As to claim 16, Hutchings discloses that the step of storing values corresponding to the first vector magnitude comprises storing the direction of the resultant of the vector of the first vector magnitude (abstract; figure 3; column 9, lines 28-32; column 19, lines 20-27; column 20, lines 1-20).

(g) As to claims 17-19, Hutchings discloses a step of transferring/downloading the first and second values to a host system/computer ("for display or analysis") and thus, the step of determining an activity level of the subject/user/walker/runner takes place in the host system/computer (abstract; column 3, lines 52-59; column 7, lines 36-42).

(h) As to claim 24, Hutchings discloses an activity monitor/system for measuring movement of objects comprising:

a measurement unit (49) with a plurality of motion sensors/accelerometers operable to produce respective sensor signals indicative of motion/acceleration experienced thereby (figure 16; column 23, lines 66-67; column 25, lines 11-12; column 27, lines 13-20) (note: column 25 erroneously refers to unit (49) as unit (48));

a processor (52)/microprocessor (56) operable to receive the sensor signals from the measurement unit (49) and to process the sensor signals (measure a distance

traversed and the speed of said object) in accordance with a predetermined method (column 24, lines 16-22; column 25, lines 60-61; column 27, lines 29-37),

wherein the processor (52)/microprocessor (56) is operable to process the sensor/accelerometer signals as respective vector components to produce a resultant vector (figures 3-5, 8-14 and 16; column 9, lines 17-64; column 10, lines 54-61; equations 23 and 32) and store values corresponding to the magnitude of the resultant vector at two or more points in time (abstract; figure 3; column 9, lines 28-32; column 19, lines 20-27; column 20, lines 1-20),

the activity monitor being attachable to a subject/user/runner/walker (for example, user's wrist or shoes) without restricting movement of the subject/user/runner/walker (abstract; figure 1; column 24, lines 47-48).

(i) As to claim 25, Hutchings discloses that the movement is measured by accelerometer (unit (49)), the movement directions are orthogonal x-, y- and z-directions (A_x, A_y, A_z) and the vector magnitudes are determined according to the following expression:

$$|a| \text{ (or } |g|) = \sqrt{(a_x^2 + a_y^2 + a_z^2)},$$

where a_x, a_y and a_z are the movement measurements in respective x-, y- and z- (A_x, A_y, A_z) directions and |a| (or |g|) is the magnitude of the resultant vector of such movement (column 15, lines 22-30; equation 25; column 23, lines 66-67).

6. Claims 10, 16-21 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Jacobsen.

(a) As to claims 10 and 21, Jacobsen discloses a method of monitoring activity of a subject/person comprising:

measuring, at a point on the subject/person ("at least one body part"), simultaneous movement in two or more directions ("more than one direction"), at each of a plurality of times during a time period/cycle (figure 2; column 2, lines 60-67; column 3, lines 7-14; column 5, lines 25-43; column 6, lines 10-22);

calculating a first vector magnitude from a first simultaneous movement measured at a first of the plurality of times during the time period (figure 2; column 5, lines 25-43, 57-63; column 6, lines 11-22);

calculating a second vector magnitude from a second simultaneous movement measured at a second of the plurality of times during the time period (figure 2; column 5, lines 25-43, 57-63; column 6, lines 11-22);

storing in a memory of an activity monitor attached to the subject ("at least one body part"), first and second values corresponding, respectively, to the first vector magnitude and the second vector magnitude (figure 2; column 2, lines 60-67; column 3, lines 25-47; column 6, lines 11-15); and

determining an activity level of the subject/person for the time period from, at least, the first and second stored values (figure 2; column 2, line 60 - column 3, line 3); or,

transmitting at least a subset of the stored values to a device configured to determine an activity level of the subject/person (figure 2; column 3, lines 56-67).

(b) As to claim 16, Jacobsen discloses the step of storing values corresponding to the first vector magnitude comprises storing the direction of the resultant of the vector of the first vector magnitude (column 5, lines 25-43).

(c) As to claims 17-19, Jacobsen discloses a step of transferring/downloading the first and second values to a host system/"base unit"/computer ("for display or analysis") and thus, the step of determining an activity level of the subject/person takes place in the host system/computer (column 3, lines 56-67; column 4, line 61 - column 5, line 24).

(d) As to claim 20, Jacobsen discloses the data used to determine the activity level includes values corresponding to two or more vector magnitudes at each of a corresponding two or more times during the time period (column 5, lines 25-43; column 6, lines 11-22).

(e) As to claim 24, Jacobsen discloses an activity monitor/"monitoring system"/system for measuring movement of objects/persons comprising:

a measurement/monitoring unit (50) with a plurality of motion sensors (58, 60)/"at least one accelerometer" (58)/"plurality of accelerometers" operable to produce

respective sensor signals indicative of motion/acceleration experienced thereby (figure 2; column 3, lines 7-14; column 5, lines 25-30); and

a processor/processing unit (54) operable to receive the sensor signals from the measurement/monitoring unit (50) and to process/interpret the sensor signals in accordance with a predetermined method (figure 2; column 3, lines 15-25; column 5, lines 43-67; column 6, lines 1-22),

wherein the processor/processing unit (54) is operable to process the sensor signals as respective vector components to produce a resultant vector (figure 2; column 5, lines 25-43), and store values corresponding to the magnitude of the resultant vector at two or more points in time (figure 2; column 3, lines 25-47; column 6, lines 10-15),

the activity monitor being attachable to a subject without restricting movement of the subject (figure 2; column 2, lines 60-67).

7. Claims 10-12, 15-22, 24 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Nikolic.

(a) As to claims 10 and 21, Nikolic discloses a method of "sensing activity and measuring work performed by an individual"/monitoring activity of a subject/person comprising:

measuring, at a point on the subject/person, simultaneous movement in two or more directions, at each of a plurality of times during a time period (figures 2-6B;

column 4, lines 45-55; column 4, line 66 - column 5, line 5; column 6, lines 42-50; column 7, lines 18-21);

calculating a first vector magnitude from a first simultaneous movement measured at a first of the plurality of times during the time period (figures 2-6B; column 12, lines 16-19, 42-59; column 17, lines 63-65; column 18, lines 18-29);

calculating a second vector magnitude from a second simultaneous movement measured at a second of the plurality of times during the time period (figures 2-6B; column 12, lines 16-19, 42-59; column 17, lines 63-65; column 18, lines 18-29);

storing in a memory/"local storage device"/mass storage (250)/storage device (524) of an activity monitor (112, 122) attached to the subject/individual (110, 120), first and second values corresponding, respectively, to the first vector magnitude and the second vector magnitude (figures 1-6B; column 4, line 66 - column 5, line 42; column 6, lines 50-57; column 14, line 66 - column 15, line 7); and

determining an activity level of the subject/individual (110, 120) for the time period from, at least, the first and second stored values (abstract; figures 2-6B; column 4, lines 4-18, 32-55); or,

transmitting at least a subset of the stored values to a device/"base station" configured to determine an activity level of the subject/individual (110, 120) (figures 2-6B; column 6, lines 14-16, 50-57; column 8, lines 39-47).

(b) As to claims 11 and 22, Nikolic discloses that the movement is measured by accelerometer (for example, (240)), the movement directions are orthogonal x-, y- and

z- directions and the first vector magnitude and the second vector magnitude are determined according to the following expression:

$$|a| = \sqrt{(a_x^2 + a_y^2 + a_z^2)},$$

where a_x, a_y and a_z are the movement measurements in respective x-, y- and z-directions and $|a|$ is the magnitude of the resultant vector of such movement (figures 2-4, 5A, 5B; column 6, lines 43-45; column 7, lines 19-20; column 11, lines 25-36; column 12, lines 43-59; column 14, line 66 - column 15, line 4; column 17, lines 63-65; column 18, lines 7-25).

(c) As to claim 12, Nikolic discloses a plurality of stored values being used to determine the activity level and each of the plurality of stored values corresponding to a vector magnitude (figures 2-6B; column 4, line 66 - column 5, line 42; column 6, lines 50-57; column 14, line 66 - column 15, line 7).

(d) As to claim 15, Nikolic discloses the step of calculating a first vector magnitude from a first simultaneous movement measured comprises obtaining the first vector magnitude from a lookup table (figures 2, 3; column 7, lines 22-29).

(e) As to claim 16, Nikolic discloses the step of storing values corresponding to the first vector magnitude comprising storing the direction of the resultant of the vector of the first vector magnitude (figures 2-6B; column 4, line 66 - column 5, line 42; column 6, lines 50-57; column 14, line 66 - column 15, line 7).

(f) As to claims 17-19, Jacobsen discloses a step of transferring/downloading the first and second values to a host system/"base unit"/computer and thus, the step of determining an activity level of the subject/individual (110, 120) takes place in the host system/computer (figures 2-6B; column 6, lines 13-15; column 9, lines 40-45).

(g) As to claim 20, Jacobsen discloses the data used to determine the activity level including values corresponding to two or more vector magnitudes at each of a corresponding two or more times during the time period (abstract; figures 2-6B; column 4, lines 4-55; columns 12, 17, 18).

(h) As to claim 24, Nikolic discloses an activity monitor/"system for sensing activity and measuring work performed by an individual"/system for measuring movement of objects/persons comprising:

a measurement unit/activity monitor (112) with a plurality of motion sensors/accelerometers (240) operable to produce respective sensor signals indicative of motion/acceleration experienced thereby (figure 1; column 5, lines 2-5, 50-59); and

a processor (220)/clearinghouse (520) operable to receive the sensor signals from the measurement unit and to process the sensor signals in accordance with a predetermined method (figures 2-4, 5A, 5B; column 7, lines 1-12; column 9, lines 25-52),

wherein the processor (220) is operable to process the sensor/accelerometer signals as respective vector components to produce a resultant vector (figures 2-4, 5A,

5B; column 12, lines 43-59; column 18, lines 7-25), and store values corresponding to the magnitude of the resultant vector at two or more points in time,

the activity monitor being attachable to a subject without restricting movement of the subject.

(i) As to claim 25, Nikolic discloses that the movement is measured by accelerometer (for example, (240)), the movement directions are orthogonal x-, y- and z- directions and the vector magnitudes are determined according to the following expression:

$$|a| = \sqrt{(a_x^2 + a_y^2 + a_z^2)},$$

where a_x, a_y and a_z are the movement measurements in respective x-, y- and z-directions and $|a|$ is the magnitude of the resultant vector of such movement (figures 2-4, 5A, 5B; column 6, lines 43-45; column 7, lines 19-20; column 11, lines 25-36; column 12, lines 43-59; column 14, line 66 - column 15, line 4; column 17, lines 63-65; column 18, lines 7-25).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchings as applied to claim 11 above, and further in view of Nikolic, as applied to claims 11 and 15 above.

As to claim 15, Hutchings fails to disclose a lookup table.

Nikolic teaches a "method and system for sensing activity and measuring work performed by an individual" including accelerometer data being stored on a storage device (25), which can be done by employing a look-up table (column 6, lines 50-51; column 7, lines 20-30).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hutchings's method to include obtaining the first vector magnitude from a lookup table, as suggested by Nikolic, because this would enable a later access of these values for further calculations or comparative analyses.

Conclusion

11. The prior art made of record and not relied upon, cited in the attached 892 form, is considered pertinent to applicant's disclosure.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Samir M. Shah whose telephone number is (571) 272-2671. The examiner can normally be reached on Monday-Friday 9:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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05/03/2007

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